

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A digital apparatus comprising a red-eye filter for modifying an area within a digitized image indicative of a red-eye phenomenon based on an analysis of a subsample representation of selected regions of said digitized image and on an analysis of meta-data information.

Claim 2 (original): The apparatus of claim 1, wherein the analysis is performed at least in part for determining said area.

Claim 3 (original): The apparatus of claim 1, wherein the analysis is performed at least in part for determining said modifying.

Claim 4 (original): The apparatus of claim 1, wherein said selected regions of said digitized image comprise the entire image.

Claim 5 (original): The apparatus of claim 1, wherein said selected regions of said digitized image comprise multi resolution encoding of said image.

Claim 6 (original): The apparatus of claim 1, wherein at least one region of the entire image is not included among said selected regions of said image.

Claim 7 (original): The apparatus of claim 1, wherein said analysis is performed in part on a full resolution image and in part on a subsample resolution of said digital image.

Claim 8 (original): The apparatus of claim 1, further comprising a module for changing the degree of said subsampling.

Claim 9 (original): The apparatus of claim 8, wherein said changing the degree of said subsampling is determined empirically.

Claim 10 (original): The apparatus of claim 8, wherein said changing the degree of said subsampling is determined based on a size of said image.

11. (original) The apparatus of claim 8, wherein said changing the degree of said subsampling is determined based on a size of selected regions of the image.

Claim 12 (original): The apparatus of claim 8, wherein said changing the degree of said subsampling is determined based on data obtained from the camera relating to the settings of the camera at the time of image capture.

Claim 13 (original): The apparatus of claim 12, wherein the data obtained from the camera includes an aperture setting or focus of the camera, or both.

Claim 14 (original): The apparatus of claim 12, wherein the data obtained from the camera includes the distance of the subject from the camera.

Claim 15 (currently amended): The apparatus of claim 8, wherein said changing the degree of said subsampling is determined based on digitized image metadata information.

Claim 16 (original): The apparatus of claim 8, wherein said modifying the area is performed including the full resolution of said digital image.

Claim 17 (original): The apparatus of claim 8, wherein said red-eye filter comprises of a plurality of sub filters.

Claim 18 (original): The apparatus of claim 17, wherein said subsampling for said sub filters operating on selected regions of said image is determined by one or more of the image size, suspected as red eye region size, filter computation complexity, empirical success rate of said sub filter, empirical false detection rate of said sub filter, falsing probability of said sub filter, relations between said suspected regions as red eye, results of previous analysis of other said sub filters.

Claim 19 (original): The apparatus of claim 1, further comprising memory for saving said digitized image after applying said filter for modifying pixels as a modified image.

Claim 20 (original): The apparatus of claim 1, further comprising memory for saving said subsample representation of said image.

Claim 21 (original): The apparatus of claim 1, wherein said subsample representation of selected regions of said image is determined in hardware.

Claim 22 (original): The apparatus of claim 1, wherein said analysis is performed in part on the full resolution image and in part on a subsample resolution of said image.

Claim 23 (original): The apparatus of claim 1, further comprising means for changing the degree of said subsampling.

Claim 24 (original): The apparatus of claim 23, wherein said changing the degree of said subsampling is determined empirically.

Claim 25 (original): The apparatus of claim 23, wherein said changing the degree of said subsampling is determined based on a size of said image.

Claim 26 (original): The apparatus of claim 23, wherein said changing the degree of said subsampling is determined based on a region size.

Claim 27 (original): The apparatus of claim 23, wherein said changing the degree of said subsampling is determined based on a complexity of calculation for said filter.

Claim 28 (original): The apparatus of claim 1, wherein said subsample representation is determined using spline interpolation.

Claim 29 (original): The apparatus of claim 1, wherein said subsample representation is determined using bi-cubic interpolation.

Claim 30 (original): The apparatus of claim 1, wherein said modifying the area is performed on the full resolution of said image.

Claim 31 (original): The apparatus of claim 1, wherein said red-eye filter comprises a plurality of sub-filters.

Claim 32 (original): The apparatus according to claim 31, wherein said subsampling for said sub-filters operating on selected regions of said image is determined by one or more of the image size, a suspected red eye region size, filter computation complexity, empirical success rate of said sub-filter, empirical

false detection rate of said sub-filter, falsing probability of said sub-filter, relations between said suspected red eye regions, or results of previous analysis of one or more other sub-filters.

Claim 33 (currently amended): A digital apparatus, comprising:

(a) an image store for holding:

(i) a temporary copy of an unprocessed image known as a pre-capture image;

(ii) a permanent copy of a digitally processed, captured image, and

(iii) a subsample representation of selected regions of the pre-capture image; and

(b) a red-eye filter for modifying an area within said at least one of the images indicative of a red-eye phenomenon based on an analysis of the subsample representation, and on an analysis of meta-data information.

Claim 34 (original): The apparatus of claim 33, wherein said at least one of the images comprises the digitally processed, captured image.

Claim 35 (original): The apparatus of claim 34, wherein said subsample representation of selected regions of said image is determined in hardware.

Claim 36 (original): The apparatus of claim 34, wherein said analysis is performed in part on the full resolution image and in part on a subsample resolution of said image.

Claim 37 (original): The apparatus of claim 34, further comprising a module for changing the degree of said subsampling.

Claim 38 (original): The apparatus of claim 37, wherein said changing the degree of said subsampling is determined empirically.

Claim 39 (original): The apparatus of claim 37, wherein said changing the degree of said subsampling is determined based on a size of said image.

Claim 40 (original): The apparatus of claim 37, wherein said changing the degree of said subsampling is determined based on a region size.

Claim 41 (original): The apparatus of claim 37, wherein said changing the degree of said subsampling is determined based on a complexity of calculation for said red eye filter.

Claim 42 (original): The apparatus of claim 37, wherein said subsample representation is determined using a spline interpolation.

Claim 43 (original): The apparatus of claim 37, wherein said subsample representation is determined using bi-cubic interpolation.

Claim 44 (original): The apparatus of claim 37, wherein said changing the degree of said subsampling is determined based on data obtained from the camera relating to the settings of the camera at the time of image acquisition.

Claim 45 (original): The apparatus of claim 44, wherein the data obtained from the camera includes an aperture setting or focus of the camera, or both.

Claim 46 (original): The apparatus of claim 44, wherein the data obtained from the camera includes the distance of the subject from the camera.

Claim 47 (original): The apparatus of claim 37, wherein said changing the degree of said subsampling is determined based on data obtained from the camera relating to image processing analysis of said precapture images.

Claim 48 (original): The apparatus of claim 47, wherein said image processing analysis is based on histogram data obtained from said pre-capture image.

Claim 49 (original): The apparatus of claim 47, wherein said image processing analysis is based on color correlogram data obtained from said pre-capture image.

Claim 50 (original): The apparatus of claim 47, wherein said image processing analysis is based on global luminance or white balance image data, or both, obtained from said pre-capture image.

Claim 51 (original): The apparatus of claim 47, wherein said image processing analysis is based on face detection analysis of said pre-capture image.

Claim 52 (original): The apparatus of claim 47, wherein said image processing analysis is based on determining pixel regions with a color characteristic indicative of redeye.

Claim 53 (original): The apparatus of claim 47, wherein said image processing analysis is performed in hardware.

Claim 54 (original): The apparatus of claim 37, wherein said changing the degree of said subsampling is determined based on image metadata information.

Claim 55 (original): The apparatus of claim 34, wherein said modifying the area is performed including the full resolution of said image.

Claim 56 (original): The apparatus of claim 34, wherein said red-eye filter comprises a plurality of sub filters.

Claim 57 (currently amended): A method of filtering a red eye phenomenon from a digitized image comprising a multiplicity of pixels indicative of color, the method comprising determining whether one or more regions within a subsample representation of said digitized image are suspected as including red eye artifact, including analyzing meta-data information.

Claim 58 (original): The method of claim 57, further comprising varying a degree of the subsample representation for each region of said one or more regions based on said image.

Claim 59 (original): The method of claim 57, further comprising generating the subsample representation based on said image.

Claim 60 (original): The method of claim 57, further comprising generating the subsample presentation utilizing a hardware-implemented subsampling engine.

Claim 61 (original): The method of claim 57, further comprising testing one or more regions within said subsample representation determined as including red eye artifact for determining any false redeye groupings.

Claim 62 (original): The method of claim 57, further comprising
(c) associating said one or more regions within said subsample presentation of said image with one or more corresponding regions within said image; and

(d) modifying said one or more corresponding regions within said image.

Claim 63 (currently amended): The method of claim 57, wherein the ~~determining comprises analyzing~~ meta-data information includes ~~including~~ image acquisition device-specific information.

Claim 64 (original): The method of claim 57, further comprising analyzing the subsample representation of selected regions of said digitized image, and modifying an area determined to include red eye artifact.

Claim 65 (original): The method of claim 64, wherein the analysis is performed at least in part for determining said area.

Claim 66 (original): The method of claim 64, wherein the analysis is performed at least in part for determining said modifying.

Claim 67 (original): The method of claim 64, wherein said selected regions of said digitized image comprise the entire image.

Claim 68 (original): The method of claim 64, wherein said selected regions of said digitized image comprise multi resolution encoding of said image.

Claim 69 (original): The method of claim 64, wherein at least one region of the entire image is not included among said selected regions of said image.

Claim 70 (original): The method of claim 64, wherein said analyzing is performed in part on a full resolution image and in part on a subsample resolution of said image.

Claim 71 (original): The method of claim 64, further comprising changing the degree of said subsampling.

Claim 72 (original): The method of claim 71, wherein said changing the degree of said subsampling is determined empirically.

Claim 73 (original): The method of claim 71, wherein said changing the degree of said subsampling is determined based on a size of said image.

Claim 74 (original): The method of claim 71, wherein said changing the degree of said subsampling is determined based on a size of selected regions.

Claim 75 (original): The method of claim 64, further comprising saving said digitized image after applying said filter for modifying pixels as a modified image.

Claim 76 (original): The method of claim 64, further comprising saving said subsample representation of said image.

Claim 77 (original): The method of claim 64, further comprising determining said subsample representation of said image in hardware.

Claim 78 (original): The method of claim 64, further comprising determining said subsample representation using spline interpolation.

Claim 79 (original): The method of claim 64, further comprising determining said subsample representation using bi-cubic interpolation.

Claim 80 (original): The method of claim 64, wherein said modifying of the area is performed including the full resolution of said image.

Claim 81 (original): The method of claim 57, further comprising determining said subsample representation utilizing a plurality of sub-filters.

Claim 82 (original): The method of claim 81, wherein said subsampling for said sub-filters operating on selected regions of said image is determined by one or more of the image size, a suspected red eye region size, filter computation complexity, empirical success rate of said sub-filter, empirical false detection rate of said sub-filter, falsing probability of said sub-filter, relations between said suspected red eye regions, or results of previous analysis of one or more other sub-filters.

Claim 83 (new): The apparatus of claim 1, wherein the metadata information comprises image acquisition device-specific metadata.

Claim 84 (new): The apparatus of claim 83, wherein the metadata information comprises digitized image metadata.

Claim 85 (new): The apparatus of claim 1, wherein the metadata information comprises digitized image metadata.

Claim 86 (new): The apparatus of claim 33, wherein the metadata information comprises image acquisition device-specific metadata.

Claim 87 (new): The apparatus of claim 86, wherein the metadata information comprises digitized image metadata.

Claim 88 (new): The apparatus of claim 33, wherein the metadata information comprises digitized image metadata.

Claim 89 (new): The method of claim 57, wherein the analyzing metadata information comprises analyzing digitized image meta-data.

Claim 90 (new): The method of claim 89, wherein the analyzing metadata information comprises analyzing image acquisition-device specific metadata.

Claim 91 (new): The method of claim 57, wherein the analyzing metadata information comprises analyzing image acquisition-device specific metadata.